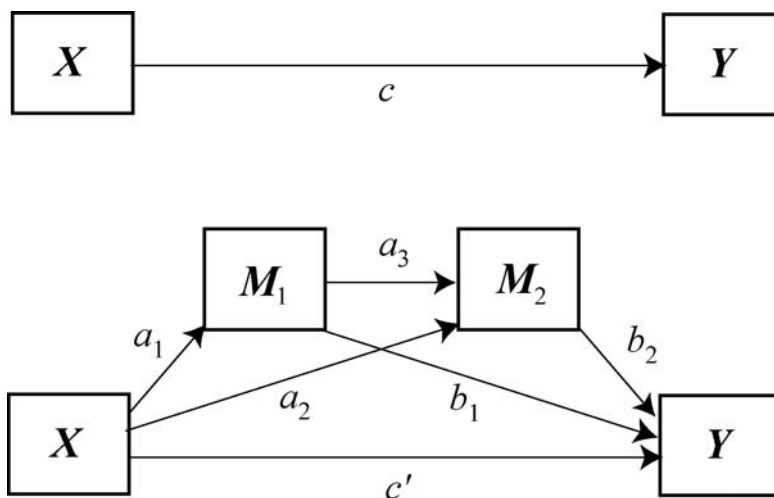


# MEDTHREE

`MEDTHREE Y = yvar/X = xvar/M1 = m1var/M2 = m2var[/boot = {z}(1000**)] .`

Subcommands in brackets are optional

\*\* Default if subcommand is omitted



## Overview

MEDTHREE estimates the total, direct, and indirect effects of  $X$  on  $Y$  in the model diagrammed above using a set of OLS regressions. For inference about the indirect effects, MEDTHREE generates percentile-based bootstrap confidence intervals and bootstrap estimates of standard errors. For a brief discussion of path analysis for such a model and example output from MEDTHREE, see Hayes, A. F., Preacher, K. J., and Myers, T. A. (in press). Mediation and the estimation of indirect effects in political communication research. In E. P. Bucy & R. L. Holbert (Eds), *Sourcebook for Political Communication Research: Methods, measures and analytical techniques*. New York: Routledge.

## Example

`MEDCURVE Y = know/X = grat/M1 = attn/M2 = elab/boot = 5000 .`

- Estimates the seven path coefficients ( $c$ ,  $a_1$ ,  $a_2$ ,  $a_3$ ,  $b_1$ ,  $b_2$ ,  $c'$ ) using three OLS regressions (one for each of  $M_1$ ,  $M_2$ , and  $Y$  as outcomes) as well as tests of significant for each path.
- Estimates the three specific indirect effects of  $X$  ( $X \rightarrow M_1 \rightarrow Y$ ,  $X \rightarrow M_2 \rightarrow Y$ ,  $X \rightarrow M_1 \rightarrow M_2 \rightarrow Y$ ), calculated as the product of the paths linking  $X$  to  $Y$ , as well as the total indirect effect.
- Produces bootstrap standard errors and 95% percentile-based confidence intervals for the specific and total indirect effects using 5000 bootstrap samples .

## Bootstrapping for Inference about Indirect Effects

Inference for indirect effects are available only through bootstrapping, as described in Hayes and Preacher (2004, 2008, in press). The number of bootstrap samples is specified as  $z$  in the `/boot` subcommand. The default is 1000. For example, 5000 bootstrap samples are requested by adding

/boot = 5000 to the command line. MEDCURVE will generate a percentile-based bootstrap confidence interval as well as the standard error of the indirect effect, estimated as the standard deviation of the bootstrap estimates. If bootstrapping is not enabled (by setting z to 0), only point estimates of indirect effects are provided in the output.

## Notes

- `m1`, `m2`, and `yvar` must be a quantitative variables and are assumed to have at least interval-level measurement properties. `xvar` can be dichotomous or quantitative with interval-level properties. MEDTHREE should not be used with categorical mediators or outcomes.
- Covariates cannot be included in the model.
- Listwise deletion is used to eliminate cases missing on any variable in the model.

## References

Hayes, A. F., Preacher, K. J., and Myers, T. A. (in press). Mediation and the estimation of indirect effects in political communication research. In E. P. Bucy & R. L. Holbert (Eds), *Sourcebook for Political Communication Research: Methods, measures and analytical techniques*. New York: Routledge.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, and Computers*, 36, 717-731.

Preacher, K. J., & Hayes, A. F. (2008a). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, 40, 879-891.

Preacher, K. J., & Hayes, A. F. (2008b). Contemporary approaches to assessing mediation in communication research. In A. F. Hayes, M. D. Slater, and L. B. Snyder (Eds.), *The Sage sourcebook on advanced data analysis methods for communication research* (pp. 13-54). Thousand Oaks, CA: Sage Publications.